Faculty Cognitive Sciences and Human Development

METACOGNITIVE SELF-REGULATION STRATEGIES ON ACADEMIC ACHIEVEMENT AMONG UNIMAS UNDERGRADUATES

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is to the best of the author's knowledge that of the author except where due reference is made.

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Faculty of Cognitive Sciences and Human Development	- FCSHD
Cognitive Sciences	- CS
Human Resource Development	- HRD
Universiti Malaysia Sarawak	- UNIMAS
Metacognitive Self-Regulation	- MSR
Cumulative Grades Points Average	- CGPA

ABSTRACT

METACOGNITIVE SELF-REGULATION STRATEGIES
ON ACADEMIC ACHIEVEMENT
AMONG UNIMAS UNDERGRADUATES

Kok Yan Jye

This paper investigates the relationship between metacognitive self-regulation strategies (MSR) and academic achievement among Unimas undergraduates. Specifically, this study examines the relationship between subcomponents of MSR and UNIMAS students' Cumulative Grade Point Average (CGPA). The five subcomponents of MSR are planning skills, information management strategies, monitoring, debugging strategies and evaluation. Academic achievement is measured based on the total average of overall examination scores (CGPA). Ninety students were randomly selected from Faculty of Cognitive Sciences and Human Development (FCSHD) in UNIMAS to take part in this research. Data was collected through a survey questionnaire which was adapted from Metacognive Awareness Inventory (MAI). The results showed that information management strategies, monitoring skill, and debugging strategies were significantly and positively correlated with academic achievement. Among the three significantly correlated pairs, debugging strategies have the highest degree of correlation with academic achievement. However, planning skill and evaluation skill subcomponents of MSR showed no significant relationship with academic achievement. It was also found that there was no programme-level difference between the data obtained from two sample groups in terms of the deployment of self-regulation strategies. The findings also showed that both CS and HRD students preferred to use information management strategies to develop their learning ability in order to achieve good results. This study concluded that metacognition self-regulation strategies are important to be developed among undergraduates to facilitate their learning process at the university.

ABSTRAK

STRATEGI-STRATEGI METAKOGNISI SECARA PANTAUAN KENDIRI DAN PENCAPAIAN ACADEMIK BAGI MAHASISWA-MAHASISWA UNIMAS

Kok Yan Jye

Kajian ini bertujuan untuk menyiasat hubungan antara strategi-strategi metakognisi secara pantauan kendiri (MSR) dan pencapaian akademik di kalangan mahasiswa-mahasiswi Unimas. Secara spesifik, kajian ini menyelidik hubungan di antara komponen-komponen MSR dengan Purata Nilai Gred Kumulatif (PNGK) mahasiswa. Lima komponen-komponen MSR yang terlibat adalah teknik perancangan, strategi mengemaskini maklumat, teknik pengawalan, teknik penyelesaian, dan teknik menilai. Keputusan akademik adalah berdasarkan purata nilai gred yang dicapai oleh mahasiswa dalam peperiksaan. Seramai 90 orang pelajar telah dipilih secara rawak dari Fakulti Sains Kognitif dan Pembangunan Manusia (FSKPM) di UNIMAS untuk mengambil bahagian dalam penyelidikan ini. Melalui soal selidik ini, data yang dikumpul adalah berdasarkan kepada Metakognitif Kesedaran Inventory (MAI). Keputusan bagi kajian ini menunjukkan bahawa strategi pengurusan maklumat, teknik pengawalan dan teknik penyelesaian terdapat korelasi positif yang signifikan dengan pencapaian akademik. Antara tiga strategi yang korelasi itu, teknik penyelesaian mempunyai hubungan yang tertinggi dengan pencapaian yang diperoleh. Selain itu, keputusan kajian ini melaporkan tiada perbezaan antara peringkat program bagi kedua-dua kumpulan dalam pengunaan strategi metakognisi pantauan kendiri. Keputusan ini juga menunjukkan bahawa pelajar dari Sains Kognitif dan Pembangunan Sumber Manusia adalah lebih mementingkan strategi pengurusan maklumat untuk meningkatkan kemahiran dalam pelajaran mereka agar memastikan mereka berjaya dalam pelajaran. Oleh itu, kajian ini menyimpulkan bahawa strategi-strategi metakognisi secara pantauan kendiri adalah penting untuk dikembangkan antara pelajar-pelajar supaya memudahkan proses pembelajaran mereka di universiti.

CHAPTER 1
INTRODUCTION

1.0 Introduction

Metacognition is one types of learning strategy which can be used to make regulatory decisions. Regulatory skills enable individuals to plan, monitor, and evaluate their learning in order to help students become self-regulated learners. This is strongly supported by components of metacognition model with "control aspect of learning is a regulation of cognition corresponds to knowledge about the way students plan, implement strategies, monitor, correct comprehension errors and evaluate their learning" (Imel, 2002). College students will be expected to have critical thinking

about what they have heard and read, identify relationships among ideas, engage in complex decision-making (King, 1990) and monitor their own thinking processes.

Metacognition refers to one's self-awareness of a knowledge base in which information is stored about how, when and where to use various cognitive strategies as well as their self-awareness for access to strategies that direct learning such as monitoring difficulty level or a feeling of knowing (Flavell, 1989). Metacognition involves different aspects such as knowledge about cognition, awareness of one's own thinking processes, comprehension monitoring for learning, control of learning processes and self regulation of cognitive procedures (Pintrich, Wolters and Baxter, 2000).

Metacognitive skill is important in our daily life. Metacognition makes us think about our thinking and enables to get a better understanding for manage our cognitive skills. It means that we are aware of our own thinking process in cognitive activities. Activities such as planning how to approach a given learning task, monitoring comprehension and evaluating progress towards the completion of a task are in nature. Metacognition has been linked with intelligence and has been shown that those with greater metacognitive abilities tend to be more successful thinker in the way directly helps to increase academic success (Frohlich and Todesco, 1975).

Metacognition plays an essential role in successful learning for both students and teachers. The use of metacognition strategies control one's thinking and can lead to more deep learning and improved performance, especially among learners who are struggling with studies (Anderson, 1999). It is important that students should have metacognitive skills so they can develop stronger learning skills with self-regulation techniques.

According to Baker and Brown (1984), Brown (1987) and Jacobs and Paris (1987), regulation of cognition is one of the two types of metacognitive techniques which affect learning and performance and it consists of five subcomponents which are planning skills, information management strategies, monitoring, debugging strategies and evaluation (Schraw, 1994). With the help of Metacognitive Self-Regulation (MSR) strategies, the process of cognitive processing is planned, monitored, reflected and evaluated (Artelt et al. 2003).

Anderson (2002) stated that preparation and planning are important metacognitive skills that can improve student learning. By engaging in preparation and planning in relation to a learning goal, students are thinking about what they need to accomplish and how they intend to go about achieving it. By setting clear and realistic goals, students will be able to perceive their own progress and make conscious decisions about the learning process.

To be effective, metacognitive instruction should clearly teach students a variety of learning strategies and also when to use them. Learners should be instructed on how to choose the best and most appropriate strategy in the given situation.

1.1 Background of Study

During the last three decades, the development of metacognition has attracted attention in educational and psychological research (Artelt, 2006). However, psychological research highlights early forms of metacognitive abilities in young children. Educational research focuses more on the development of metacognitive components such as the use and the self regulation of learning strategies in high school. Researchers indicate that planning and information management skills are important predictors for successful problem solving in higher education (Horward, McGee, Hong and Shia, 2001).

Metacognitive practices such as monitoring for comprehension, analyzing causes of error, and adjusting learning strategies accordingly contribute to higher student outcomes (Browne, Campione and Day, 1981; Flavell, 1978). Successful learners monitor their own comprehension and adjust their learning strategies accordingly (Paris, Lipson and Wixson, 1983; Brown and Palincsar, 1982). Self-appraisal and self-management based upon the learner's motivational beliefs are

effective practices for young learners (Paris and Parecki, 1995). The existing evidence strongly supports this belief and continuous progress in students' use of metacognitive learning strategies between the ages of 11 and 15 (Baumert 1993; Baumert and Köller 1996; Veenman and Spaans 2005; Veenman et al. 2004; Zimmerman and Martinez-Pons 1990). This existing evidence clearly indicates that the use of metacognitive learning strategies is strongly connected with students' age, at least until the end of secondary level.

However, research also indicates that the use of metacognitive learning strategies depends on students' gender and socio-economic background. In term of gender, a significantly large part of the literature refers to clear advantage for female students in comparison to male students (Artelt et al. 2003; Brühwiler and Biedermann 2005; Schiefele et al. 2003; Zimmerman and Martinez-Pons 1990).

In term of socio-economic background, the literature refers to obvious advantages for students with a culturally-rich socio-economic background in comparison with those from educationally-disadvantaged strata (Artelt et al. 2003; Artelt et al. 2001). This fact may be explained by attitudes towards learning which are influenced by family background. A high education of learning and achieving will clearly encourage focus on learning processes benefiting metacognitive approaches. The metacognitive skills show a significant impact on the self-efficacy of high risk college students (Rampp and Guffey, 1999). Studies clearly show that metacognitive

skills play an important role in effective learning that leads to academic success (Flavell, 1985; Klein, 1998; Swanson, 1992; Zimmerman and Martinez-Pons, 1990).

There are many skills are taught at schools in a manner in which they will be tested rather than how the skills would be used in life (Travis, 1996). As a result, students begin to study with memorization to get grades rather than understanding and acquiring the knowledge and skills they will use in the future. The evaluation should include descriptions of how students plan, monitor and evaluate, as well as their self-regulation strategies (Baron, 1987). Instead of measuring knowledge, educators could identify the students' level of metacognition through assessing metacognition.

According to Swanson (1990), previous research has shown that Metacognitive Self Regulation (MSR) and the use of metacognitive skills can be as predictors of achievement scores (as cited in Howard, McGee, Hong and Shia, 2001). The research is in line with this present study which generally aims to investigate whether MSR can be as predictors the academic achievement.

Metacognition plays an important role in communication of information, comprehension, writing, memory, problem solving, social cognition and various type of self-control. There are also clear indications that ideas about metacognition are beginning in the areas of social learning theory, cognitive behavior and education

(Nelson, 1992). Thus, the nature development of metacognition in monitoring or regulation is emerging as an interesting and promising new area of investigation.

1.2 Problem Statement

There are many factors that may contribute to the academic achievement of a student. Some students find it hard to accomplish good results in examination. One of the problems is related to learning skills. Metacognitive skills are the main factors which affect learning and academic achievement as we are engaged in metacognitive activities every day. As metacognition plays a critical role in successful learning, it is important to study metacognitive activity and development to determine how students can be taught to better apply their cognitive process through metacognitive control in order to understand metacognitive process better.

Besides, other problems that contribute to poor results in academic are learning disabilities such as lack of awareness of metacognition knowledge and metacognition regulation of cognition. According to Flavell (1979, 1987), metacognitive self regulation is applied with using the planning and managing strategies to get more understanding and awareness in learning processes. Students who have poor results in academic might benefit from learning the metacognitive skills in their subjects. On the other hand, students who only memorize information without understanding are not the suitable learning ways for success in the future.

Besides, another problem is lack of self-questioning. College students lack in asking questions in the lectures. Consequently they are unable to know what they have learned as well as checking the outcomes of those activities. Those with greater metacognitive abilities tend to be more successful in their cognitive activities so that individuals can learn how to better regulate their cognitive activities (Howard et al., 2001).

However, the problems exist among many learners do not realize what affects their learning, how do they learn, what types of metacognitive strategies work for them, what types of skills and strategies they need in order to be able to complete a learning task. They need to know when, how and why to use the strategies for different learning situation and for distinct tasks (Bruning, Schraw, Norby, and Ronning, 2004).

Last but not least, the problem of lacking in motivation to learn or having passive control behavior would affect the result of academic achievement. High self-regulators know a lot about themselves, how they learn best and they are strong in academic learning skills. They also have self-control that makes learning easier (Murphy and Alexander, 2000). In addition, for those lacks of self-control and volition learners are unable to cope their feeling when they are tired, emotional, lazy or angry while learning.

1.3 Research Objectives

The main purpose of this study is to explore the metacognitive self-regulation strategies for achieve academic success. This research aims to find out how to use problem solving skills and enhance learning techniques in learning processes in order to succeed in academic performance.

General Objective

This study aims to investigate the relationship between metacognitive self-regulation and academic achievement among undergraduate students at the Faculty of Cognitive Sciences and Human Development University Malaysia Sarawak (UNIMAS).

Specific Objectives

This study examines the relationship between subcomponents of metacognitive self-regulation (planning skills, information management strategies, monitoring skills, debugging strategies and evaluation) and the academic achievement of students at the Faculty of Cognitive Sciences and Human Development (FCSHD).